

Notice of Allowability

Application No.

10/760,586

Examiner

Isiaka O. Akanbi

Applicant(s)

HAYANO, FUMINORI

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 27 October 2006.
2. ☒ The allowed claim(s) is/are 1-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Amendment

The amendment file 27 October 2006 has been entered into this application.

Response to Arguments

Applicant's arguments/remarks, see pages 12-14, filed 27 October 2006, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. 112, second par., and claim (s) 1--32 under 35 U.S.C. 101 have been fully considered and are persuasive. The amended claims provide an output from which a user can determine whether the substrate suffers from wafer-induced-shift, as recited in independent claims 1, 8, 16 and 23 is a tangible result. Therefore, the rejections have been withdrawn.

Examiner's Reasons for Allowance

Claims 1-32 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

As to claims 1 and 16, the prior art of record, taken alone or in combination, fails to disclose or render obvious calculates a relationship between changes in overlay deviation values and changes in focus position of the substrate for a plurality of sets of the first and second marks that are provided on the substrate and generates a user-readable output based on the calculated relationship, the user-readable output enabling the user to determine whether the substrate suffers from wafer-induced-shift, in combination with the rest of the limitations of the claim. Claims 2-7 and 17-22 are allowable by virtue of their dependency.

As to claims 8 and 23, the prior art of record, taken alone or in combination, fails to disclose or render obvious calculates a relationship between changes in overlay deviation values and changes in focus position based upon the determined first and second overlay deviation values and the first and second focus positions, and generates a user-readable output based on the calculated relationship, the user-readable output enabling the user to determine whether the substrate suffers from wafer-induced-shift, in combination with the rest of the limitations of the claim. Claims 9-15 and 24-30 are allowable by virtue of their dependency.

Art Unit: 2877

As to claim 31, the prior art of record, taken alone or in combination, fails to disclose or render obvious calculating a vector-trend illustrating a relationship between changes in overlay deviation values and changes in focus position of the substrate for a plurality of sets of the first and second marks that are provided on the substrate, and, and generates a user-readable output based on the calculated relationship, the user-readable output enabling the user to determine whether the substrate suffers from wafer-induced-shift, in combination with the rest of the limitations of the claim.

As to claim 32, the prior art of record, taken alone or in combination, fails to disclose or render obvious calculating first and second relationship between changes in overlay deviation values and changes in focus position of first and second substrate for a plurality of sets of the first and second marks that are provided on the second substrate and determining a shift in wafer-induced-shift by comparing the first relationship with the second relationship, and generating a user-readable output based on the determined shift in wafer-induced-shift, the user-readable output enabling the user to determine whether the substrate suffers from wafer-induced-shift, in combination with the rest of the limitations of the claim.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed in the attached form PTO-892 teach of other prior art method/apparatus for analyzing overlay deviation in alignment.

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

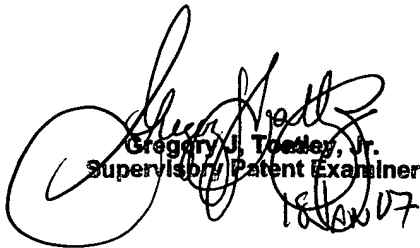
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

January 3, 2007


Gregory J. Toetley, Jr.
Supervisory Patent Examiner
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